Comment on the proposed designation of a neotype for *Nautilus pompilius* Linnaeus, 1758

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After having read the text of Case 3703 I would like to express my full support for the idea to set aside all previous type fixations and designate a neotype for *Nautilus pompilius* Linnaeus, 1758. Shells of chambered nautiluses (and primarily the most common *N. pompilus*) are well known collectibles, traded across the globe. However, some particular life history traits (slow growth and late maturation, low fecundity, long embryogenesis) in combination with human-induced pressures (such as habitat destruction and unregulated wild harvest) have made these species vulnerable to overharvest and increased their risk of extinction (De Angelis, 2012). The situation is worsened by the fragmented distribution of *N. pompilius,* with important genetic divergence between populations. As an example, the spatial subdivision between *N. pompilus* living in the Coral Sea and those in the Timor Sea (separated by a gap of ca. 3,000 km) has resulted in strong inter-population genetic difference. Moreover, even two east Australian populations living just ca. 300 km apart have been found to be genetically different geographical clades (Sinclair et al., 2015). Because of this, there is a high risk of losing some of the unique genetic resources in these disparate populations (possibly even unique species and sub-species within the *Nautilus* group). Evidences of strong population decline are already obvious, in some areas and *Nautilus* spp. likely should be assessed as 'endangered' in the IUCN (International Union for Conservation of Nature) Red List (Dunstan et al., 2010).

However, *N. pompilus* is not currently listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The IUCN is also still working to assess the conservation status of *Nautilus* using the IUCN Red List Categories. The work aimed at the conservation of this endangered species is hampered by absence of an unambiguous holotype of *N. pompilius*. A neotype designation is urgently needed for the IUCN red list assessments for this species, which are very difficult in the absence of an identifiable type specimen with known provenance, as well as for trade regulations for this species by CITES.

Considering that none of the surviving (or illustrated) syntypes of *Nautilus pompilius* are suitable for lectotype designation and that some syntypes most likely belong to various *Nautilus* species, the identity of this species cannot be presently resolved. Also, a new synthesis on *Nautilus* species and populations, which is about to be published by Saunders et al. (in press) shows that these populations contain a mixture of different species and subspecies, and proposing a neotype for the *Nautilus pompilius* is part of resolving these other (sub)species as well. I also fully support the proposal to use for this purpose the specimen housed in the collections of the Smithsonian Institution (USNM 816877 [AMB 16]).

Additional reference

Dunstan, A., Alanis, O. & Marshall, J. 2010. *Nautilus pompilius* fishing and population decline in the Philippines: A comparison with an unexploited Australian *Nautilus* population. *Fisheries Research*, **106**: 239–247.